

What is claimed is:

1 1. A programming device for RFID transponders
2 comprising:

3 a) a strip transmission line comprising:

4 i) a central conductor having a top and a
5 bottom surface;

6 ii) a first dielectric layer having a top and a
7 bottom surface substantially parallel to one another
8 and a predetermined first thickness, said bottom
9 surface being disposed adjacent said top surface of
10 said central conductor;

11 iii) a second dielectric layer having a top and
12 a bottom surface substantially parallel to one
13 another and having a predetermined second thickness
14 and a second dielectric constant, said top surface
15 being disposed adjacent said bottom surface of said
16 central conductor;

17 iv) at least one ground plane disposed
18 proximate said top surface of said first dielectric
19 layers and said bottom surface of said second
20 dielectric layer, said strip transmission line

21 having a characteristic impedance defined by at
22 least one of the factors: said first thickness, said
23 second thickness, said first dielectric constant,
24 and said second dielectric constant; and

25 b) a housing substantially surrounding said strip
26 transmission line having an opening disposed adjacent
27 said central conductor adapted to receive an RFID
28 transponder therein; whereby, upon application of an RF
29 programming signal to said central conductor, an RF field
30 is generated and a first RFID transponder inserted into
31 said opening may be programmed thereby while said RF
32 field is of insufficient intensity to program any other
33 RFID transponders adjacent said first RFID transponder.

1 2. The programming device for RFID transponders as
2 recited in claim 1, wherein said first RFID transponder and
3 said adjacent RFID transponders are supported on a web.

1 3. The programming device for RFID transponders as
2 recited in claim 2, wherein said strip transmission line
3 comprises at least one of the configurations: linear, U-
4 shaped, and meandering strip transmission lines.

1 4. The programming device for RFID transponders as
2 recited in claim 3, wherein said strip transmission line
3 further comprises a terminating impedance, operatively
4 connected between said central conductor and at least one of
5 said at least one ground planes.

1 5. The programming device for RFID transponders as
2 recited in claim 4, wherein said terminating impedance
3 comprises a terminating resistor.

1 6. The programming device for RFID transponders as
2 recited in claim 5, wherein said terminating resistor is
3 external to said housing.

1 7. The programming device for RFID transponders as
2 recited in claim 3, wherein said opening comprises a
3 substantially rectangular channel extending completely through
4 said housing, disposed substantially perpendicular to said
5 central conductor of said strip line and sized and adapted to
6 receive said web.

1 8. The programming device for RFID transponders as
2 recited in claim 7, wherein said housing comprises a housing
3 separable in a plane substantially parallel to adjacent said
4 central conductor.

1 9. The programming device for RFID transponders as
2 recited in claim 8, further comprising a hinge along an edge
3 of said housing and substantially in said plane of separation.

1 10. The programming device for RFID transponders as
2 recited in claim 8, wherein said rectangular channel is
3 exposed when said separable housing is separated whereby said
4 web may be inserted into said rectangular channel.

1 11. The programming device for RFID transponders as
2 recited in claim 3, wherein said opening comprises a slot
3 extending completely along a face of said housing, said slot
4 being sized and configured to receive said web therein.

1 12. The programming device for RFID transponders as
2 recited in claim 11, wherein said slot further comprises an
3 end cap removably attachable to said housing and extending
4 substantially along the length of said slot.

1 13. The programming device for RFID transponders as
2 recited in claim 12, wherein said end cap is electrically
3 conductive and adapted, when in place, to create an electrical
4 connection between a first portion of said housing adjacent an
5 upper portion of said slot and a lower portion of said housing
6 adjacent a lower portion of said slot.

1 14. A method for programming RFID transponders disposed
2 on a web, the steps comprising:

3 a) providing an RFID programming device comprising a
4 housing, a transmission line disposed within said
5 housing, and an opening adjacent said transmission line
6 adapted to receive a web carrying a plurality of RFID
7 transponders disposed adjacent one another;

8 b) inserting a portion of said web carrying said
9 plurality of RFID transponders into said opening;

10 c) supplying at least an RF programming signal to
11 said transmission line; whereby an RFID transponder
12 adjacent said transmission line is programmed by an RF
13 field generated by said RF programming signal and
14 surrounding said transmission line, said RF field being
15 constrained by at least the configuration of said housing
16 and the configuration of said transmission line such that
17 said RF field is insufficient for programming any other
18 RFID transponder on said web.

1 15. The method for programming RFID transponders disposed
2 on a web as recited in claim 14, wherein said transmission
3 line is one of the types: strip, and microstrip transmission
4 line.